

rior auricle moderate, anterior absent. Cardinal area triangular with a narrow ligament pit overhung slightly by the small sharp umbo; hinge edentulous. Lunule triangular, concave, both borders angulate (90°), sculptured with a weak radial riblet and weaker, irregular, radial wrinkles. Ornament of fine, close, punctate grooves, divaricate along the median line from to umbo to ventral margin; angle of divarication very acute and hardly to be seen. Several strongly marked growth stages stepping down across the disc. Color a very pale brown, translucent; growth stages marked by narrow, opaque white, concentric bands. Remnant of pale brown periostracum within the lunule.

Holotype – USNM No. 784699. A right valve, height 10.0 mm, length 8.2 mm, semi-diameter 2.5 mm.

Type locality – Recent, Chichiriviche de la Costa, Federal District, Venezuela.

Remarks – Apart from the holotype there are two, small paratypes each measuring approximately: height 3.0 mm, length 2.75 mm. All are right valves and came from a sand sample collected at 30 m by SCUBA-diver Alan Handin. A figure of a paratype of *D. albicoma* (courtesy Dr. Kenneth J. Boss, MCZ) is shown for comparison (Fig. 3).

Comparisons – *Divarilima albicoma handini*

n. subsp. differs from *D. albicoma* Dall in being less produced anteriorly and posteriorly, resulting in a narrower, more equilateral shell. In *handini* the anterodorsal and posterior margins subtend an acute angle at the umbo; in *albicoma* the angle is obtuse. The narrowness of *handini* is reflected in the much more acute angle of divarication along the median line. Furthermore, *albicoma* is described as having two lines of divarication (the figure even shows three), in *handini* there is only one. Whether the depth ranges of the two forms overlap remains to be seen; it may be significant that neither taxon was found in seafloor samples from nine offshore drilling locations, in water depths from 55 to 150 m.

LITERATURE CITED

- Abbott, R. T. 1974. *American Seashells*. 2nd ed. Van Nostrand Reinhold Co., New York; 663 pp., 4000+ text figs.; 24 pls. (in color).
- Dall, W. H. 1886. Reports on the results of dredging, under the supervision of Alexander Agassiz, in the Gulf of Mexico (1877-78) and in the Caribbean Sea (1879-80) by the U.S. Coast Survey Steamer "Blake" Bull. Mus. Comp. Zool., Vol. 12, pp. 153-318, 9 pls. Harvard Univ., Cambridge, Massachusetts, U.S.A.
- Moore, R. C. 1969. Treatise on Invertebrate Paleontology. Part N, vol. 1, Mollusca 6. Bivalvia, pp. i-xxxviii + N1-N489, text figs. Geol. Soc. Amer. Inc. & Univ. Kansas.

THE SUBFAMILY MELAMPINAE (PULMONATA: BASOMMATOPHORA) IN VENEZUELA, WITH DESCRIPTIONS OF TWO NEW SPECIES

J. Gibson-Smith and W. Gibson-Smith

Escuela de Geología, Minas y Geofísica, Universidad Central de Venezuela
Apartado 47.351, Caracas 1041 A, Venezuela

ABSTRACT

The presence of two, new melampid species in the Venezuelan Recent is reported: Detracia roquesana n. sp. and Tralia venezuelana n. sp., the latter occurring also in the early Miocene Cantaure Formation, Paraguaná Peninsula, and the late Pliocene Mare Formation, Cabo Blanco. T. venezuelana is only the second species of Tralia to be recorded from the Western Atlantic.

The pulmonate genus *Melampus* is represented in the Venezuelan Recent by *Melampus*

(*Melampus*) *coffea* (Linnaeus, 1758) (Fig. 1) and *Melampus* (*Pira*) *monilis* (Bruguière, 1789)

(Figs. 2, 3). These two taxa range from Florida and Bermuda to Brazil (Abbott 1974:331). The former is generally known as *coffeus*, but it has been pointed out by Altena (1975:86) that being a noun, it is correctly, *coffeæ*. Two other pulmonate genera present in the Recent of Venezuela are *Detracia* Gray in Turton, 1840, and *Tralia* Gray in Turton, 1840. The former is represented in Florida and the northern Caribbean by the type-species *D. bullaeoides* Montagu, 1808), *D. floridana* (Pfeiffer, 1856) and *D. clarki* Morrison, 1951, but in Suriname Altena, 1975:86) and Brazil (Marcus & Marcus, 1965:42) the representative is *D. parana* Morrison, 1951, the type locality being Pará = Belém), Brazil. In Venezuela, *Detracia* has not been found on the mainland but is present on the islands of Los Roques where it is represented by a new species here identified as *Detracia roquesana* n. sp. The genus *Tralia* is known in the Recent of the Western Atlantic by a single species, *T. ovula* (Bruguère, 1789), which ranges from southeast Florida and Bermuda to Barbados (Abbott 1974:33). It has been reported also from the Caribbean coast of Panamá (Olsson & McGinty 1958:19) and from Curacao (Coomans 1958:103), in both instances as *Tralia pusilla* (Gmelin, 1791), a synonym. It occurs also in Venezuela (Figs. 4, 5) where, however, a second, more common form is present which is identified here as, *Tralia venezuelana* n. sp. The ancestor of the latter is present in the early Miocene (Burdigalian) Canaure Formation of the Paraguaná Peninsula; it was referred to, *Tralia* cf. *ovula*, by Gibson-Smith & Gibson-Smith (1979:22), but is now found to be identical with *T. venezuelana* n. sp.: it occurs also in the late Pliocene Mare Formation, Cabo Blanco. The Melampinae are hardly known as fossils in the region, one other record being of *Tralia vetula* Woodring, 1928, from the Pliocene Bowden Formation, Jamaica.

Detracia roquesana

Gibson-Smith & Gibson-Smith, n. sp.

Fig. 6

Description – Shell small, about 10 mm in

height, obovate, widest at the middle. Whorls adpressed, about 11 in all, the bodywhorl about two-thirds of the shell height. Protoconch at right angles to shell axis, one-half turn only visible, brown. The shell lacks sculpture and is spirally banded in shades of brown. Aperture narrow, the outer lip not flared. Inner lip with heavy callus, a strong fold at the base of the columella and a weak fold, well within the aperture, at the middle of the parietal area. Above the latter the parietal area is weakly excavated and lacks callus, with the result that the lower edge of the area becomes a broad, low fold, or pseudo-fold. Within the outer lip are 3 to 8 lirae, the lowest and largest projects towards the columella fold, leaving only a narrow gap between. Opposite the parietal fold and pseudo-fold, the gap is again narrowed by two strengthened lirae lying opposite within the outer lip.

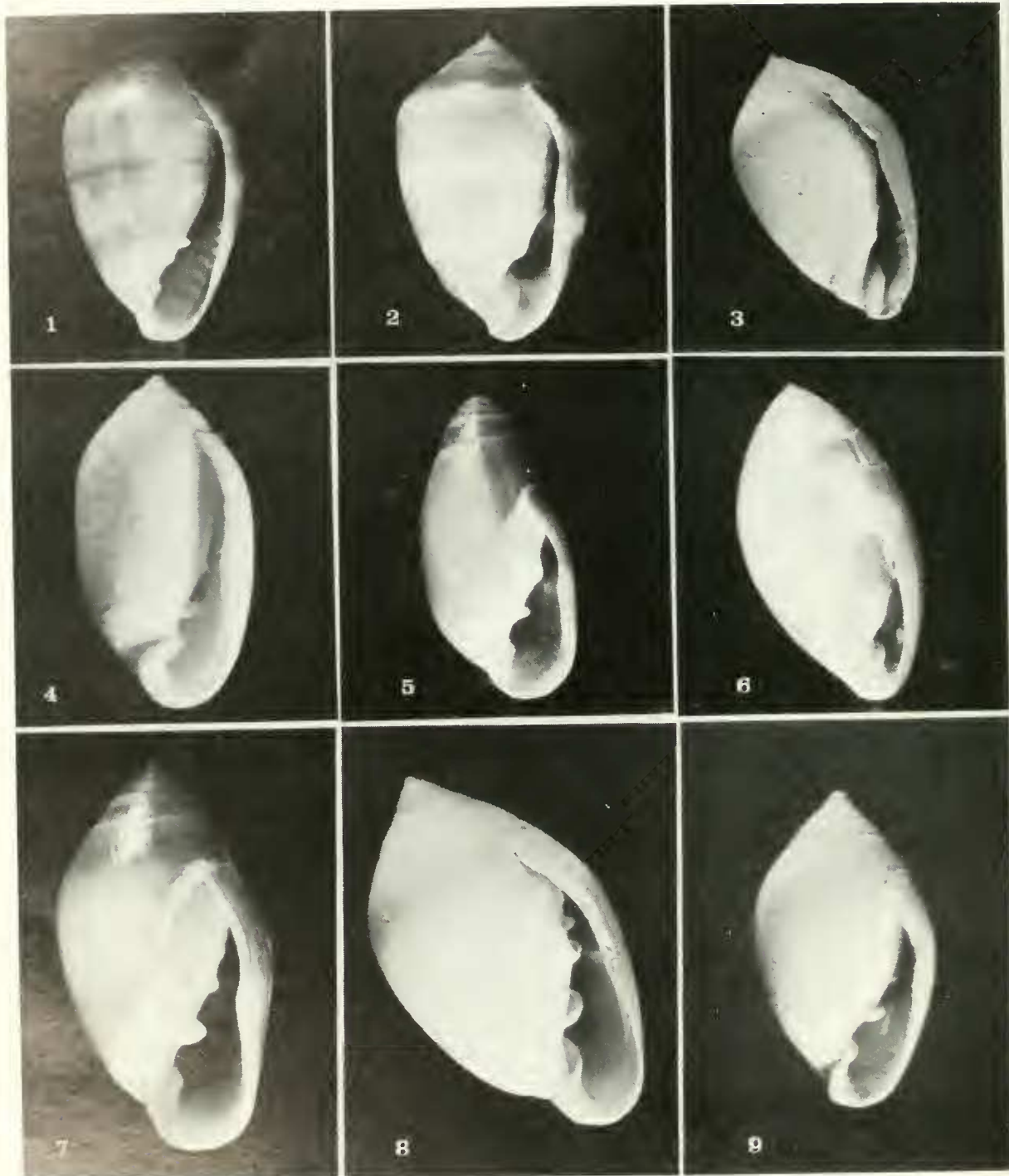
Holotype – USNM 784718. Height 10.6 mm, diameter 5.8 mm.

Locality – Recent, Islas Los Roques, Venezuela.

Paratypes – British Museum (Natural History) and the Natural History Museum Basel. Remainder in the collections of the authors.

Remarks – The 6 specimens were collected in beach drift and the exact ecological niche is unknown, but is, presumably, above high tide level as for other members of the family. The islands are fringed by coral reefs and mangroves abound. There is no obvious variation in shell morphology.

Comparisons – *Detracia roquesana* n. sp. differs from all the four known Western Atlantic species; *D. bullaeoides* is more elongate, lacks a parietal fold and lirae within the outer lip, and the protoconch is white; *D. floridana* is smaller, more globose and the lirae within the outer lip are not enlarged opposite the columella and parietal folds; *D. clarki* has 2 lower columella folds and is sculptured with spiral, incised lines above the shoulder and around the base and, lastly, *D. parana* is smaller, more rotund and normally possesses only a single, outer lip lira, many shells lacking even that.



FIGS 1-9. *The subfamily Melampinae in Venezuela (for explanations, see opposite).*

Tralia venezuelana

Gibson-Smith & Gibson-Smith, n. sp.

Figs. 7, 8 9

Tralia cf. *ovula* (Bruguère, 1789), Gibson-Smith & Gibson-Smith, 1979, GEOS No. 24, p. 22.

Description – Shell small up to about 15 mm in height, obovate, greatest diameter about the middle. Protoconch small, pimple-like, at right angles to shell axis, about one-half turn only visible. Teleoconch of 8 whorls, the weakly shouldered bodywhorl comprising three-quarters of the shell. Shell glossy, color dark brown with faint spiral and axial banding in shades of brown. Sculpture of up to 9, spiral, pitted grooves above the shoulder, marking the rows of setae of the periostracum; remainder of surface covered with crowded, microscopic scratches, stronger around the base. Shell surface interrupted by growth incrementals. Aperture wider and flaring below, restricted at the middle by a heavy spiral thickening within the outer lip. Columella with a strong basal fold and a stronger one above at the base of the parietal area with, on the parietal area proper, weaker third and fourth folds, the uppermost the weakest, lying well inside the aperture and more easily seen in juvenile specimens.

Holotype – USNM 784719. Height 12.7 mm, diameter 7.2 mm.

Locality – Recent, Borburata, Falcón State, Venezuela. Living also at other north coast localities from the Paraguaná Peninsula to Carenero, Miranda State, and on the islands of Los Roques, Tortuga and Margarita. As a fossil it occurs in the early Miocene Cantaure Formation, Paraguaná Peninsula, and in the late Pliocene Mare Formation, Cabo Blanco.

Paratypes – British Museum (Natural History) and the Natural History Museum Basel. Remainder in the collections of the authors.

Remarks – The material available consists of 87 specimens from the various localities; it is from beach drift only, the animal living, presumably, just above high tide level as do other members of the family. There is some variation in globosity. In Venezuela, *Tralia ovula* is largely replaced by *T. venezuelana* n. sp. only 3 specimens of the former having been found, two at Borburata, Carabobo State and one from Islas Los Roques (Figs. 4, 5), two localities where *T. venezuelana* also occurs. From the Cantaure Formation one juvenile (Fig. 9) and one spire have been recovered and from the Mare Formation a spire only with pitted grooves. *T. venezuelana* is only the second Recent species to be reported from the region. Its presence at Cantaure and Mare helps to confirm the shallow water nature of those faunas.

Comparisons – The fourth inner lip fold distinguishes *T. venezuelana* from *T. ovula* and from the west coast forms *T. panamensis* (C. B. Adams, 1852) and *T. vanderbilti* Schwengel, 1938. *T. ovula*, furthermore, lacks the pitted spiral grooves of *T. venezuelana*. The only other fossil from the region is *T. vetula* Woodring, 1928, from the Pliocene Bowden Formation, Jamaica; it also has pitted spiral grooves at the top of the whorl, but lacks the fourth, inner lip fold and it is smaller and slimmer.

LITERATURE CITED

- Abbott, R. T. 1974. *American Seashells*. Second Edition. Van Nostrand Reinhold Company, New York, 663 pages.
 Altena, C. O. van Regteren. 1975. The marine Mollusca of Suriname (Dutch Guiana) Holocene and Recent, Part 3: Gastropoda and Cephalopoda. *Zool. Verhand.* No. 139, 104 pp., 43 Text figs., 11 pls.
 Coomans, H. E. 1958. A survey of the littoral Gastropoda of the Netherlands Antilles and other Caribbean Islands. *Studs. Fauna Curacao*, No. 31, pp. 42-111, 16 pls.

FIG. 1. *Melampus (Melampus) coffea* (Linnaeus, 1758). Recent, Carenero, Miranda State, Venezuela. Height 9.5 mm, diameter 6.0 mm.

FIGS. 2-3. *Melampus (Pira) monilis* (Bruguère, 1789). Recent, Borburata, Carabobo State, Venezuela. 2, height 12.1 mm, diameter 7.9 mm. 3, whitened, height 8.9 mm, diameter 5.1 mm.

FIGS. 4-5. *Tralia ovula* (Bruguère, 1789). 4, Recent, juvenile, Borburata, Carabobo State, Venezuela, whitened, height 4.6 mm, diameter 2.4 mm. 5, Recent, Islas Los Roques,

Venezuela, height 10.1 mm, diameter 5.0 mm.

FIG. 6. *Detracia roquesana* n. sp., holotype, USNM 784718, height 10.6 mm, diameter 5.8 mm, Recent, Islas Los Roques, Venezuela.

FIGS. 7-9. *Tralia venezuelana* n. sp. 7, holotype, USNM 784719, height 12.7 mm, diameter 7.2 mm, Recent, Borburata, Carabobo State, Venezuela. 8, paratype, whitened, height 7.8 mm, diameter 4.6 mm, *ibid.* 9, Cantaure Formation, Paraguaná Peninsula, Venezuela, height 3.8 mm, diameter 2.2 mm.

Gibson-Smith, J. and W. Gibson-Smith. 1979. The genus *Arcinella* (Mollusca: Bivalvia) in Venezuela and some associated faunas. GEOS No. 24, pp. 11-32, 3 pls.

Marcus E. and E. Marcus. 1965. On Brazilian supratidal and estuarine snails. *Bol. Fac. Fil. Cien. Letr. Univ. S. Paulo*

No. 287, Zoologia No. 25, pp. 19-82, 10 pls.

Olsson, A. A. and T. McGinty. 1958. Recent marine mollusks from the Caribbean coast of Panama with the description of some new genera and species. *Bull. Amer. Paleont.* 39(177):58, 5 pls.

AN ANCESTRAL *STEPHOPOMA* (MOLLUSCA: GASTROPODA) FROM THE TERTIARY OF VENEZUELA

J. Gibson-Smith and W. Gibson-Smith

Escuela de Geología, Minas y Geofísica, Universidad Central de Venezuela, Apartado 47.351, Caracas 1041 A, Venezuela

ABSTRACT

Stephopoma pennatum Mörch, 1860, from the Panamic Province and not previously known as a fossil, has been found in the early Miocene Cantaure Formation, Venezuela. The only other species in the region is *S. myrakeenae* Olsson & McGinty, 1958, from the Caribbean adjacent to the exit of the Panamá canal. *S. myrakeenae* has not been shown to differ from *S. pennatum* and this raises the question of whether the former is a Miocene relict, or whether the sessile *pennatum* has reached the Caribbean shore via the canal, attached to the hulls of ships.

Stephopoma pennatum Mörch, 1860, lives in shallow water in the Eastern Pacific from Nicaragua to Peru. Keen (1971:396:450) places the genus in the Vermiculariinae, probably because of its turrellid operculum edged with bristles. On the other hand, Abbott (1974:101) assigns it to the Vermetidae. The most striking feature is the protoconch which is neither turrellid nor vermetid. It is described by Keen (loc. cit.) as follows: "The initial whorls are flat, resembling a small *Heliacus*, lighter-colored than the adult shell, studded with radial rows of pustules". Olsson & McGinty (1958:35) identified a second species, but from the Caribbean coast of Panamá: *Stephopoma myrakeenae*. They assigned it also to the Vermetidae.

Stephopoma Mörch, 1860, the type of which is *Vermetus roseum* Quoy & Gaimard, 1832, from the Recent of New Zealand, is not known as a fossil. However, from the early Miocene (Burdigalian) Cantaure Formation, Paraguaná Peninsula, Venezuela, twelve protoconchs have been collected with short lengths of the disjunctly-coiled shell attached (Fig. 1). The specimen micrographed (Fig. 1) was inadvertently in-

verted when mounted; but no matter. The planorbid protoconch consists of 1 1/4 rapidly expanding whorls, the first half-turn smooth, followed by the pustulose decoration. The irregular adult tube, subquadrate to subcircular in section, is smooth and glossy within; externally, it is closely, longitudinally ribbed, the surface roughened by sinuous growth incrementals, some of which are scaly, and the longest tube measures about 15 mm with a diameter of 2 mm. All this is much as in *S. pennatum*, to which the shell is referred.

The Caribbean *S. myrakeenae* was not differentiated from *S. pennatum* and although it was not described as being ribbed, it was said that most of the adult tubes were very worn. Otherwise, it is indistinguishable and should, perhaps, be added to the short list of species occurring on either side of the Isthmus of Panamá (Radwin 1969:234, 235; Vermeij 1978:213, 269). *S. myrakeenae* was found at Colón and Bocas del Toro Island, some 250 km to the west. The question has to be asked, therefore, whether it is pure coincidence that this Miocene relict found refuge adjacent to the exit of the Panamá canal.